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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,968	08/10/2001	Yoshikazu Kuroumaru	AI 211	4391

23995 7590 04/28/2003

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EXAMINER

VAN PELT, BRADLEY J

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,968

Applicant(s)

KUROUMARU ET AL.

Examiner

Bradley J Van Pelt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hancock (USPN 5,377,555).

Hancock discloses a tilt steering apparatus for a tilt adjustable steering column (3), comprising: a fixed bracket fixed to a body of a vehicle, and having side a tilt bracket (16) fixed to the steering column and having side plates (6) positioned to slide along the fixed bracket at a time of tilt adjustment; a supporting shaft (17) passing through respective insertion holes of the side plates the fixed bracket and of the side plates of the tilt bracket; a lock lever (14) rotatable around an axis of said supporting shaft and in a locking direction to lock the steering column in an adjusted tilt position, and being rotatable around the axis of said supporting shaft and in a locking releasing direction; and a cam surface (C) and a cam follower (11) which are relatively rotated while being brought into sliding contact with each other as the lock lever is rotated, the cam surface including a locking position in which the steering column is locked in the adjusted tilt position, a releasing position in which the steering column is unlocked so as to be free to be adjusted to a desired tilt position, and an intermediate position disposed between the locking position and the releasing position, the intermediate position including a plurality of slopes

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corresponding to a rotation stroke position of the lock lever, the cam surface pressing the cam follower as the lock lever is rotated in the locking direction so that the side plates of the fixed bracket are pressed against each other, resulting in the steering column being locked at the adjusted position.

Hancock discloses the cam follower is moved in a first direction relative to the cam surface when the lock lever is rotated in the locking direction, the plurality of slopes of the cam surface include first and second slopes which are upward slopes in the first direction, the second slope being gentler than the first slope, and the cam follower slides from the first slope of the cam surface to the second slope thereof when the lock lever is rotated in the locking direction.

Note: since the surface of the Hancock apparatus is curved, there are an infinite number of slopes. In the direction of unlocking to locking, the cam surface passes through a maximum point (10d), meaning that the slope in this direction must become gentler as it approaches zero.

Hancock discloses the plurality of slopes of the cam surface include a third slope (see note above) which slopes upward in the first direction, the third slope being gentler than the second slope, and the third slope corresponds to a rear of a stroke in a locking direction of the lock lever, and the cam follower successively slides toward the first, second and third slopes of the cam surface in this order when the lock lever is rotated in the locking direction.

Hancock discloses the plurality of slopes of the cam surface include an inverse slope (10c) which slopes downward in the first direction, the inverse corresponds to a rear of a stroke in the locking direction of the lock lever, and the cam follower slides toward the first and second slopes and the inverse slope of the cam surface in this order when the lock lever is rotated in the locking direction.

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Hancock discloses all of the instantly claimed invention as stated in the rejection of claim 1 and a means for increasing an operating torque of the lock lever at a front of a stroke in the locking releasing direction of the lock lever, the cam surface and wherein the cam follower constitute means for increasing the operating torque of the lock lever.

Hancock discloses that an angle of inclination of the cam follower surface differs from an angle of inclination of an area, corresponding to at least the front of the stroke in the locking releasing direction of the lock lever, of the cam surface.

Hancock discloses the cam surface includes an area (10c) corresponding to a front of a stroke in the locking releasing direction of the lock lever, and a recess concaved by providing a step in the area.

Hancock discloses the cam follower includes a cam follower surface, which is brought into contact with the cam surface, and the cam follower surface includes a projection which is engaged with a rear of a stroke in the locking direction of the lock lever.

Hancock discloses an area, corresponding to the front of the stroke in the locking releasing direction of the lock lever, of the cam surface includes a portion (10d) having no slope.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hancock, as applied to claims 1 and 7, in view of Fevre et al. (USPN 5,743,150).

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Hancock discloses the plurality of slopes of the cam surface includes first and second slopes which slope upward in the same direction, the second slope being gentler than the first slope;

Hancock does not disclose the first and second slopes each being linear.

Fevre et al. show a system for guiding and locking a motor vehicle column in which a linear slope is formed on a cam surface (53).

To modify the steering apparatus of Hancock with a linear cam surface would have been obvious to one of ordinary skill in the art in view of the teachings of Fevre et al. that such an arrangement improves calculation of forces acting on cam surface, therefore, better determining an appropriate mechanical advantage lever combination for the user.

Response to Arguments

5. Applicant's arguments filed February 28, 2003 have been fully considered but they are not persuasive. The examiner holds the position that a curved surface contains an infinite number of slopes, and that before the mechanism in Hancock is locked into position (10C) the cam follower will pass through a first and second slope, which slope upward in a first direction, the second slope being gentler than the first slope and a third slope, that slopes in the same direction gentler than the second slope, since the cam has a maximum peak area just before the locking position (10C), in which case the slope is equal to zero. As the slope approaches zero at the maximum peak, the infinite slopes become infinitely small, thus gentle. Hancock reads on the claimed invention.

The examiner also holds the position that the cam follower (11) of Hancock is in sliding contact with the cam surface because of the definition of sliding in the dictionary "to move smoothly along a surface" as Hancock's cam follower holds true to this definition.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Courvoisier (USPN 5,392,667).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley J Van Pelt whose telephone number is (703)305-8176. The examiner can normally be reached on M-Th 7:00-4:30, 2nd F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703)308-3668. The fax phone numbers for the

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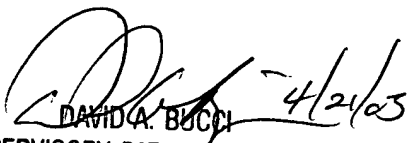
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organization where this application or proceeding is assigned are (703)746-9391 for regular communications and (703)305-3597 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-2168.

BJVP
April 21, 2003


DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
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